

All of the pending claims in the application were rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Office Action identifies specific language in the claims which are considered to be indefinite. Applicants have amended the claims to clarify the invention and to provide greater specificity with respect to the language identified in the Office Action.

For example, the term “optical element” was considered by the examiner to be indefinite, since it could possibly include devices such as “mirror, lenses, telescope, laser, scanner, camera, microscope, magnifying glass, glass of water, crystal, prism, etc.” Applicants respectfully suggest that the term is not indefinite when read in connection with the present specification. While mirrors, lenses, magnifying glasses, crystals, and prisms might fall within the meaning of “optical element” in the present invention, this term clearly would not include telescopes, scanners, cameras and glasses of water. Nevertheless, Applicants have amended the claims to clarify the types of devices within the term “optical element.” Specifically, claims 1 and 16 have been amended to recite that the optical element is a unitary structure having a peripheral edge and which is substantially planar at the peripheral edge. This language includes the simple types of optical elements included in the specification and excludes the complicated devices suggested in the Office Action.

The Office Action further states that the terms, “extraction portion,” “gripping” portion” and “retainer” are unclear in claims 1 and 16. These claims have been amended to clarify the recited structures of the invention. Specifically, the optical element holding and extraction device includes an optical holder and a retainer. The optical holder has two parts, a tubular gripping portion and a tubular extraction portion. The two parts are connected together as a unitary structure. The diameter of the extraction portion is less than the diameter of the gripping portion. Furthermore, the gripping portion engages the peripheral edge of the optical element to

retain it. The retainer has an interior surface which engages the exterior surface of the extraction portion of the holder so that it is slideable. Claims 1 and 16 properly recite the structures of the optical holder, including the gripping portion and the extraction portion, and the retainer.

The Office Action states that the language of claims 2, 3 and 17 are not clear. Claims 2 and 17 recite that the optical holder and optical element are rotateable relative to the retainer. Claim 3 recites that the retainer and the optical holder each have an axis of rotation and that those axes are the same. These claims have been amended to clarify the language.

Claims 4 and 14 were rejected allegedly because the “mounting structure” lack antecedent basis. However, the mounting structure is an additional element of the invention included in claims 4 and 14. Nevertheless, the claims have been amended to clarify the structure of the mounting structure and its relationship to the other parts of the optical element holding and extraction device.

Claims 6 and 22 were rejected because the language about the retainer being threadably engaged with the mounting structure was allegedly unclear. Claims 6 and 22 have been amended to recite the structure of the retainer and mounting structure. Specifically, these claims recite a first set of threads on the retainer and a second set of threads on the mounting structure for engaging the first set of threads. Accordingly, the structures are clearly set forth.

Claims 16-34 were rejected as lacking structural limitations in order to have a clear claim. The Office Action suggests that the “resonator cavity, active gas medium, pumping means, and structural means” are missing. Applicants respectfully disagree. Claim 16 recites a gas laser comprising a tube, a mounting structure, an optical element, an optical holder and a retainer. The structures and relationships between these elements are clearly recited. Applicants have amended claim 16 to recite an electrode system for generating a laser beam having an

optical axis. The recitation of the electrode system is sufficient to create a complete structure for the gas laser of the present invention.

In view of the amendments and foregoing remark, reconsideration of the rejection of claims 1-34 under 35 U.S.C. §112, second paragraph, is respectfully requested. The claims properly recite the elements of the invention and their relationships. The structures of the elements are also set forth in the claims. Accordingly, the claims particularly point out and distinctly claim the subject matter regarded as the invention, as required by 35 U.S.C. §112, second paragraph.

Claims 1-8 and 10-15 were rejected under 35 U.S.C. §102(b) as being anticipated by Vodzak. Vodzak does not disclose, teach or suggest the optical holding and extraction device of the present invention as set forth in the claims. Vodzak discloses a thermometer probe having a watertight seal. The Office Action references a filter holding structure as anticipating the present claims. However, the filter holding structure disclosed in Vodzak is not the same as the claimed invention.

Vodzak discloses, in Figs. 13, 14 and 15, a filter holder assembly 536 for securely holding an IR filter 515 (Examiner Ref. 1). The structure of the filter holder assembly 536 is discussed in column 9, lines 26- The filter holder assembly 536 includes a holding member 537 (Examiner Ref. 2), a sealing member 535, and a screw-on member 538 (Examiner Ref. 3). The holding member 537 includes an inner flange 540 for seating the IR filter. For assembly, the sealing member 535 is placed on the inner flange 540 with the IR filter 515 on top. The screw-on member 538 is screwed onto the holding member 537. The screw-on member 538 has a lip which abuts the IR filter 515 to hold it in place against the sealing member 535. The IR filter is held in place by the lip on the screw-on member 538. To assemble a probe, a tube 513

(Examiner Ref. 5) is attached to an anti-rotation collar 531, which is, in turn, affixed to the probe head body 510 (Examiner Ref. 4). The filter holder assembly 536 is slid over the tube 513 until it engages the probe head body 510. The filter holder assembly 536 is held in place by the probe tip 511.

The present claimed invention differs substantially from the probe disclosed in Vodzak or any combination of components of the probe. The present invention, as recited in claim 1, relates to a optical element holding and extraction device. It includes three elements: a optical element, an optical holder, and a retainer. The optical holder is an unitary structure having two parts a tubular gripping portion and a tubular extraction portion. The tubular extraction portion has a smaller diameter than the tubular gripping portion. The tubular gripping portion engages the peripheral edge of the optical element to retain the optical element within the optical holder. The retainer is slideable along the tubular extraction portion.

Vodzak does not disclose, teach or suggest such a structure. In particular, Vodzak does not disclose a unitary optical holder. The IR filter is held by a combination structure including the filter holder, the sealing member and the screw-on member. The nature of the filter holder assembly requires that it be a structure with multiple parts. The IR filter is retained between the lip of the screw-on member and the sealing member. These two elements interact with opposing surfaces of the IR filter to retain the IR filter and to create a seal. On the other hand, the optical holder of the present claimed invention, as recited in claim 1, has a unitary structure. The optical element is retained by the tubular gripping portion which engages the peripheral edge of the optical element. Vodzak does not teach or suggest a structure which engages the peripheral edge of an optical element. The Office Action suggests that a portion of the filter holder, identified as Reference 2 grips the IR filter. However, there is nothing in Vodzak which identifies the filter

holder and gripping a peripheral edge of the IR filter. Vodzak only teaches that the lip of the screw-on member retains the IR filter. Thus, Vodzak discloses a different structure for retaining the IR filter.

Furthermore, claim 1 recites that the optical holder includes a tubular extraction portion. The Office Action suggests that the tube in Vodzak teaches the extraction portion of the present invention. However, the tube does not meet the limitations of claim 1 and does not show the structure of the present invention. As recited in claim 1, the extraction portion is a unitary part of the optical holder with the gripping portion. The tube in Vodzak is a separate piece from the filter holder assembly. Additionally, claim 1 recites that the retainer is slideable along the tubular extraction portion. Thus, as defined in claim 1, the present invention includes a single optical holder with a portion which is slideable within a retainer. The tube and filter holder in Vodzak are not slideable within the probe body. During assembly, the tube is attached to the probe body using the anti-rotation collar. The filter holder assembly is then slid over the tube and attached with the probe tip. The tube and filter holder assembly are separately moveable. The tube and probe body, on the other hand, are fixed. This is the reverse of the structure recited in claim 1. In the present invention, the gripping portion and extraction portion of the optical holder are a unitary structure which is fixed. The retainer is moveable with respect to the optical holder. Thus, the structure of Vodzak does not teach or suggest the structure of the present invention.

Since the claimed structures of the present invention are not taught or suggested by Vodzak, claim 1 patentably distinguishes over the cited art. While the Office Action identifies portions of the probe in Vodzak as corresponding to the elements of claim 1, those portions do

not have the structures nor relationships recited in the claim. Accordingly, claim 1 is in condition for allowance.

Claims 2-15 depend from claim 1 and are allowable for at least the same reasons. These claims also include additional limitations which further distinguish over the cited art. For example, claim 2 recites that the retainer and extraction portion of the optical holder engage such that the optical holder and optical element are rotateable within the retainer. Despite statements to the contrary in the Office Action, the structures in Vodzak identified as corresponding to the optical holder are not rotateable in the probe body. The anti-rotation collar attaches the tube to the probe body. The purpose of the anti-rotation collar is to prevent rotation of the tube relative to the probe body. Therefore, Vodzak teaches away from the structure recited in claim 2.

Claim 4 recites a mounting structure having an optical element receiving surface. When the retainer is engaged with the mounting structure, the optical element is positioned against the optical element receiving surface. The optical element in Vodzak is not positioned against any element, other than the filter holder assembly, when the probe is fully assembled. Thus, Vodzak does not teach or suggest a receiving mounting structure with a receiving surface positioned against the optical element, and claim 4 is in condition for allowance.

Claim 5 depends from claim 4 and recites a seal between the optical element and the optical element receiving surface. Since Vodzak does not teach or suggest an optical element receiving surface, it cannot teach or suggest such a seal. The Office Action references seal 528. However, that seal is not positioned between the optical element and any other surface. Therefore, claim 5 patentably distinguishes over the cited art and is in condition for allowance.

With respect to claims 12, 14 and 15, the Office Action merely states that Vodzak discloses the recited elements without any indication of where such disclosure occurs. These

claims recite various structures of the gripping portion and the mounting structure. Vodzak does not teach or suggest any such structures. Therefore, all of these claims are in condition for allowance.

Claims 16-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Vodzak in view of Chenausky. Applicant respectfully requests reconsideration. Claims 16-34 recite a gas laser. The Office Action states that Vodzak discloses the claimed invention except for the gas laser incorporated therein. The Office Action goes on to indicate that it would have been obvious to combine Chenausky's teaching of the gas laser with the optical element "because was made to accommodated the laser device inside the holding structure since holding the laser will made the system more precise and statically stable and advantageously avoid the laser from being damaged or deteriorated by exterior causes." Applicant does not understand the reasoning. Nothing in Vodzak nor Chenausky suggests holding a laser for a more precise system or to prevent damage. Furthermore, the present invention does not relate to a holder for holding a laser. Therefore, the combination of Chenausky and Vodzak is without support and should be withdrawn.

Even if Vodzak and Chenausky could be combined, the claims distinguish over the combination. The claims include limitations relating to elements of a gas laser, including a tube having a port, and optical axis extending within the tube, a mounting structure, an optical element, an optical element holder and a retainer. The optical element, optical element holder, and retainer include the same limitations as claim 1. As discussed above, Vodzak does not teach or suggest the optical holder or other parts of the present invention. Chenausky also fails to disclose any of the elements of the optical holder. Accordingly, claim 16 patentably distinguishes over the cited art and is in condition for allowance.

Claims 17-34 depend from claim 16 and are allowable for at least the same reasons. These claims also include limitations similar to those in claims 2-15. For the reasons set forth above, Vodzak does not disclose, teach or suggest any of the structures of the dependent claims. Therefore, the dependent claims are in condition for allowance.

Based on the foregoing, this application is believed to be in allowable condition, and a notice to that effect is respectfully requested. If the Examiner has any questions, he is invited to contact the Applicant's undersigned attorney at the number provided below.

Respectfully submitted,



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APPENDIX

1. (Amended) An optical element holding and extraction device comprising:

an unitary optical element having a peripheral edge, the peripheral edge being substantially planar with respect to a first direction substantially perpendicular to the peripheral edge;

[an] a unitary optical holder comprising a tubular gripping portion and a tubular extraction portion connected at one end to the tubular gripping portion and having a diameter less than the tubular gripping portion, the tubular gripping portion [gripping] engaging the peripheral edge of the optical element to retain the optical element within the optical holder; and

a retainer [slideably carried on] having an interior surface engaging an exterior surface of the tubular extraction portion of the optical holder so as to be slideable along the exterior surface of the tubular extraction portion in a second direction substantially perpendicular to the first direction.
2. (Amended) A device according to claim 1, wherein the interior surface of the retainer engages the exterior surface of the tubular extraction portion such that the optical holder and optical element are [is] rotateable [within] with respect to the retainer perpendicular to the second direction. [about a common axis, and rotation of the holder rotates the optical element].
3. (Amended) A device according to claim 2, wherein

the retainer comprises an externally threaded sleeve;

the optical element is substantially round; and

the externally threaded sleeve has an axis of rotation [is also common with] substantially identical to the axis of rotation of the holder and the optical element with respect to the retainer.

4. (Amended) A device according to claim 1, further comprising:

a mounting structure comprising an optical element receiving surface, wherein the retainer is removeably [engaged] engageable with the mounting structure [and secures] such that when the retainer is engaged with the mounting structure, the optical element is positioned against the optical element receiving surface.

6. (Amended) A device according to claim 4, wherein

the retainer [is] includes a first set of threads;

the mounting structure includes a second set of threads engaging the first set of threads to removeably engage the retainer and [threadably engaged with] the mounting structure.

14. (Amended) A device according to claim [1] 4, wherein the mounting structure comprises a flexible tube element comprising a base end [,] an optical element receiving end, [an optical element receiving surface within the flexible tube element proximate to the receiving end,] and a flexible section interposed between the base end and the receiving surface, and wherein the optical element receiving surface is part of the flexible tube element, proximate the optical element receiving end.

16. (Amended) A gas laser, comprising:

a tube having a first end wall at one end and a second end wall at the other end, wherein the tube defines a cavity for containing a laser gas therein, and the first end wall includes a port;

an electrode system disposed within the tube for generating a laser beam having an optical axis extending longitudinally through the tube and passing through the port;

a mounting structure mounted on the first end wall of the tube, the mounting structure comprising an optical element receiving surface and an aperture extending through the receiving surface, wherein the aperture is disposed transverse to the optical axis and is aligned with the port and the optical axis so that the optical axis passes through the aperture;

an unitary optical element having a peripheral edge, the peripheral edge being substantially planar with respect to a first direction substantially perpendicular to the peripheral edge;

[an] a unitary optical holder comprising a tubular gripping portion and a tubular extraction portion connected at one end to the tubular gripping portion and having a diameter less than the tubular gripping portion, the tubular gripping portion [gripping] engaging the peripheral edge of the optical element to retain the optical element within the optical holder; and

a retainer [slideably and rotateably carried on] having an interior surface engaging an exterior surface of the tubular extraction portion of the optical holder so as to be slideable along the exterior surface of the tubular extraction portion in a second direction substantially perpendicular to the first direction, the retainer being [removeably engaged] engageable with the mounting structure [and securing] such that the optical element is positioned against the optical element receiving surface to form a gas tight seal therebetween; wherein

the optical element is disposed transverse to the optical axis and the optical axis impinges on the optical element.

17. (Amended) A device according to claim 16, wherein the interior surface of the retainer engages the exterior surface of the tubular extraction portion such that the optical holder and optical element are [is] rotateable [within] with respect to the retainer perpendicular to the second direction. [about a common axis, and rotation of the holder rotates the optical element].

18. (Amended) A gas laser according to claim [16] 17, wherein the retainer may be [loosened without completely disengaging] partially disengaged from the mounting structure[, and wherein when the retainer is loosened the holder is rotateable within the retainer about a common axis, and rotation of the holder rotates the optical element] such that the optical holder and optical element may be rotated within the retainer.

20. (Amended) A gas laser according to claim 18,
the retainer comprises an externally threaded sleeve;
the optical element is substantially round; and
the externally threaded sleeve has an axis of rotation [is also common with] substantially identical to the axis of rotation of the holder and the optical element with respect to the retainer.

22. (Amended) A gas laser according to claim 16, wherein
the retainer [is] includes a first set of threads;
the mounting structure includes a second set of threads engaging the first set of threads to removeably engage the retainer and [threadably engaged with] the mounting structure.

23. (Amended) A gas laser according to claim 22, wherein the [retainer] first set of threads comprises an externally threaded sleeve.

30. (Amended) A gas laser according to claim 16, wherein the mounting structure comprises a flexible tube element comprising a base end [,] an optical element receiving end, [an optical element receiving surface within the flexible tube element proximate to the receiving end,] and a flexible section interposed between the base end and the receiving surface, and wherein the optical element receiving surface is part of the flexible tube element, proximate the optical element receiving end.

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